REMARKS

Reconsideration of this application is respectfully requested.

The drawing objections on Form PTO-948 have been noted and will be remedied in response to a Notice of Allowance.

As requested, proposed drawing changes are shown for Figure 9 by separate letter to the Chief Draftsperson.

As recommended by the Examiner, a new more descriptive title has been effected by the above amendment. The specification has also been amended so as to put it into more traditional US format.

In response the rejection of claims 18-20 under 35 U.S.C. §112, second paragraph, these claims have been cancelled without prejudice or disclaimer thus mooting this ground of rejection.

The rejection of claims 1-10 and 12-16 under 35 U.S.C. §103 as allegedly being made "obvious" based on Clarke '914 in view of Weisser '633 is respectfully traversed.

The present invention performs security checking of incoming messages at a "low-level" (e.g., layer 2 in the SS7 terminology). The reason for doing this is that there is some dedicated simple processing equipment for performing this low level processing (the layer 2 processing) at each link connection to the node. By performing the security

processing at this level, the additional load is distributed among the different sets of (layer 2) processing equipment rather than placing the entire load on the smaller number of main processors (which perform all higher layer processing). When the load is distributed among the different (layer 2) sets of processing equipment, the increased load on each set is small and the consequent reduction in performance of the node as a whole is small. When the load is placed entirely on the main processor(s), there is a significant reduction in performance of the main processor(s) resulting in a significant reduction in performance of the node as a whole. This is at least one reason why prior art techniques - such as that described in Weisser '633 - have not been adopted thus far by the industry.

The independent claims have been amended above so as to further emphasize such distinctions over the cited art.

It will be seen that independent claims 1, 2, 8, 13, 14 and 15 now more explicitly require communication with a communications network node having plural links, each link having an associated low level processor feeding signals to at least one higher level processor within the node with overwriting of a control field being performed by the low level processors of the node before the signal is processed by higher level functions running on higher level processor(s) of the node. For reasons that will be explained in more detail below with respect to newly presented claims 21-23, this feature is not believed to be present or suggested by the cited references.

In brief, the two cited references are distinguished from new claims 21-23 because Clarke et al '914 nowhere describes comparing fields of each incoming message with prestored permissible values and taking corrective action in the event of determining that at least one value is impermissible. While Weisser '633 does describe such a comparison, it is silent as to where the comparison takes place. However, a person skilled in the art would understand that the comparison must be taking place at the high level processor because:

1) This is conventionally where such comparison is performed in this type of system;

2) The described process involves generating random numbers, and storing these in a database together with data derived from the incoming messages. Generating random numbers and storing data in a database are processes generally performed by high level processors; and

3) There are suggestions that the described process could also involve investigating fields which are part of a higher than layer 2 layer (e.g., at page 15, lines 5 to 7), it lists all of the layer 2 parameters and then states that it "may check for the validity of other selected parameters." This would involve investigating inside the layer 2 "envelope" which is something which would typically not be done by a low-layer (layer 2) processor but rather by the high level main processor.

Thus Weisser is distinguished from the present invention (all claims) where the comparison is performed at a low level, the low level being defined in claim 21 as requiring one set of low level processing means associated with each link and a plurality of such low level processing means feeding into a smaller number of higher level processing means.

It is noted that no prior art-based rejection has been made with respect to dependent claim 11. This claim has been amended above so as to remove an unintended multiple-dependency (i.e., which should have been removed by applicant's preliminary amendment of October 29, 1998).

Accordingly, all now pending claims 1-17, 21 and 22 are now believed to be in allowable condition and a formal Notice to that effect is respectfully solicited.

Attached hereto is a marked-up version of the changes made to the specification and claim(s) by the current amendment. The attached page(s) is captioned "**Version With Markings To Show Changes Made.**"

Respectfully submitted,

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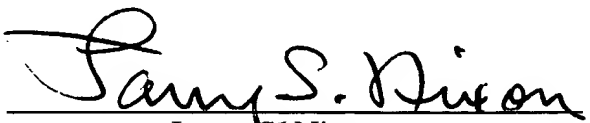
By: 

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

Please substitute the following amended claim(s) for corresponding claim(s) previously presented. A copy of the amended claim(s) showing current revisions is attached.

Cancel claims 18-20 without prejudice or disclaimer.

Amend independent claims 1, 2, 8, 13, 14 and 15 (as well as dependent claim 11) as shown below:

1. (Amended) A method of operating a node in a communications network, which node is in use connected to [a] signal sources external to the communications network via respectively corresponding links, each link having an associated low level processor feeding signals to one or more higher level processor within the node, there being fewer higher level processors than low level processors, the method comprising:

a) receiving at each low level processor from [the said] a respective signal source signals which include a control field, which control field takes one of a plurality of possible values, and the subsequent handling of the said signal by the network being controlled according to the value of the control field;

b) within a lower level of a messaging protocol running on the low level processors of the node, and prior to the processing of the signal by higher level functions

running on [the] a higher level processor of the node, overwriting the control field with a value from a restricted subset of the plurality of possible values; and

c) subsequently processing the signal in the network in dependence upon the said value from the restricted subset of the plurality of possible values.

2. (Amended) A method of operating a communications network comprising:

a) communicating control signals between nodes of the network via respectively corresponding links, each link having an associated low level processor feeding signals to one or more higher level processor within the node, there being fewer higher level processors than low level processors, which control signals conform to a predetermined signalling protocol;

b) at one of the said nodes, receiving at a low level processor from a signal source external to the network signals conforming to the said predetermined protocol and including a control field, which control field takes one of a plurality of possible values;

c) within [a] said lower level of a messaging protocol running on the node, and prior to the processing of the signal by higher level functions running on the node overwriting the control field with a value from a restricted subset of the plurality of possible values; and

d) subsequently processing the signal in the network in dependence upon the said value from the restricted subset of the plurality of possible values.

8. (Amended) A node suitable for connection in a communications network and comprising:

a) a network interface for connection to the communications network;

b) a signal interface for connection to a signal source external to the communications network via respectively corresponding links, each link having an associated low level processor feeding signals to one or more higher level processor within the node, there being fewer higher level processors than low level processors;

c) means connected to the signal interface for overwriting, within a lower level of a messaging protocol at a low level processor, a control field in a signal received via the signal interface from the signal source with one of a subset of predetermined values; and

d) signal processing means for processing the said signal in dependence upon the said one of a subset of predetermined values.

11. (Twice Amended) A communications network including a node according to claim 8 [or 10].

13. (Amended) A method of operating a node in a communications network, which node is in use connected to a signal source external to the communications network via respectively corresponding links, each link having an associated low level processor feeding signals to one or more higher level processor within the node, there being a fewer higher level processors than low level processors, the method comprising:

a) receiving at a low level processor from the said signal source signals which include a control field, which control field takes one of a plurality of possible values, and the subsequent handling of the said signal by the network being controlled according to the value of the control field;

b) overwriting the control field at a low level processor with a value from a restricted subset of the plurality of possible values; and

c) subsequently processing the signal in the network in dependence upon the said value from the restricted subset of the plurality of possible values.

14. (Amended) A method of operating a communications network comprising:

a) communicating control signals between nodes of the network via respectively corresponding links, each link having an associated low level processor feeding signals to one or more higher level processor within the node, there being fewer higher level processors than low level processors, which control signals conform to a predetermined signalling protocol;

b) at one of the said nodes, receiving at a low level processor from a signal source external to the network signals conforming to the said predetermined protocol and including a control field, which control field takes one of a plurality of possible values;

c) overwriting at a low level processor the control field with a value from a restricted subset of the plurality of possible values; and

d) subsequently processing the signal in the network in dependence upon the said value from the restricted subset of the plurality of possible values.

15. (Amended) A method of operating a node in a communications network, which node is in use connected to a signal source external to the communications network via respectively corresponding links, each link having an associated low level processor feeding signals to one or more higher level processor within the node, there being fewer higher level processors than low level processors, the node including a data link layer interface arranged to respond to service request from network layer functions of the node and to issue service requests to the communications network the method comprising:

a) receiving at a low level processor from the said signal source signals which include a control field, which control field takes one of a plurality of possible values, and the subsequent handling of the said signal by the network being controlled according to the value of the control field;

b) within the data link layer interface at a low level processor overwriting the control field with a value from a restricted subset of the plurality of possible values; and

c) subsequently processing the signal in the network in dependence upon the said value from the restricted subset of the plurality of possible values.